

Roll No. _____

**B.Sc-M.Sc. INTEGRATED PROGRAM
SCHOOL OF CHEMICAL AND LIFE SCIENCES
SEMESTER V EXAMINATION 2019
PAPER NO; BCH-CC10 TH
PAPER TITLE; PHYSICAL CHEMISTRYIII (ELECTROCHEMISTRY)**

Write your Roll no. at the top immediately after receipt of this paper

Time: 3.0 hrs

Max.Marks 75

Attempt All questions. All parts of a question must be attempted in continuation. Start answer of a fresh question on a new page.

Cite examples and draw diagrams wherever necessary.

Q1 Attempt ALL questions

1.5 x 10 = 15

- i. What is electrolyte?
- ii. What is ionic mobility?
- iii. What is transport number?
- iv. Write Nernst Equation.
- v. What is Paramagnetism?
- vi. What is Diamagnetism?
- vii. What is Electrochemical cell?
- viii. What is equivalent conductivity?
- ix. What is EMF?
- x. What is Dipole Moment?

Q2 Attempt ANY THREE of the following

5 x 3 = 15

- i. What is Arrhenius theory of electrolytic dissociation? Why molar conductivity of strong as well as strong electrolyte always increases with dilution?
- ii. What is Debye-Huckel theory for strong electrolyte? Derive Debye-Huckel Limiting law.
- iii. Explain Kohlrausch Law of independent migration.
- iv. Explain Electrophoretic, Wien and Falkenhagen effect.

Q3 Attempt ANY THREE of the following

5 x 3 = 15

- i. Why only the cations of second group get precipitated on passing the H_2S in presence of HCl and not group fourth cations?
- ii. What is the difference between Ionic product and solubility product?
- iii. Explain Hittorf method to determine transport number.
- iv. Explain moving boundary method to determine transport number

Q4 Attempt ANY THREE of the following

5 x 3 = 15

- i. What are the applications of Nernst Equation?
- ii. Explain Concentration cell with junction.
- iii. Explain Concentration cell without junction.
- iv. Explain Liquid junction potential.

Q5 Attempt ANY THREE of the following

5 x 3 = 15

- i. What is the relationship between dielectric constant and solvation power of a solvent?
- ii. Derive Clausius-Mosotti equation.
- iii. Derive Lorenz-Lorentz equation.
- iv. What is magnetic susceptibility?

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